



Sequence Listing.ST25  
SEQUENCE LISTING

<110> Baehrecke, Eric H.

<120> GENES REGULATING PROGRAMMED CELL DEATH

<130> 4115-131

<140> 10/016,768

<141> 2001-10-29

<160> 12

<170> PatentIn version 3.2

<210> 1

<211> 53

<212> PRT

<213> Drosophila melanogaster

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His Arg Ala Gly Ser Tyr Tyr Gly Val Pro His Ser Thr Leu Glu Tyr  
35 40 45

Lys Val Lys Glu Arg  
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<211> 53

<212> PRT

<213> Homo sapiens

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Ser Lys Ala Gln Gly Ile Tyr Gly Val Pro His Ser Thr Leu Glu Tyr  
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Lys Val Lys Glu Arg  
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<212> PRT

<213> Mus musculus

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<212> PRT

<213> Caenorhabditis elegans

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His Arg Ala Gly Ser Phe Phe Gly Val Pro His Ser Thr Leu Glu Tyr  
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## Sequence Listing.ST25

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## Sequence Listing.ST25

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## Sequence Listing.ST25

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## Sequence Listing.ST25

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# Sequence Listing.ST25

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20 25 30

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Cys Lys Ser Ile Gln Met Asn Gln Ala Glu Asn Ser Leu Gln Glu Glu
35 40 45

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Gln Glu Gly Pro Leu Asp Leu Thr Val Asn Arg Met Gln Glu Gln Asn
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Thr Gln Gln Gly Asp Gly Val Leu Asp Leu Ser Thr Lys Lys Thr Ser
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Ile Lys Ser Glu Glu Ser Ser Ile Cys Asp Pro Ser Ser Glu Asn Ser
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Val Ala Gly Arg Leu His Arg Asn Arg Glu Asp Tyr Val Glu Arg Ser
100 105 110

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Ala Glu Phe Ala Asp Gly Leu Leu Ser Lys Ala Leu Lys Asp Ile Gln
115 120 125

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Ser Gly Ala Leu Asp Ile Asn Lys Ala Gly Ile Leu Tyr Gly Ile Pro
130 135 140

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Gln Lys Thr Leu Leu Leu His Leu Glu Ala Leu Pro Ala Gly Lys Pro
145 150 155 160

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Ala Ser Phe Lys Asn Lys Thr Arg Asp Phe His Asp Ser Tyr Ser Tyr
165 170 175

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Lys Asp Ser Lys Glu Thr Cys Ala Val Leu Gln Lys Val Ala Leu Trp
180 185 190

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# Sequence Listing.ST25

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Glu Thr Ser Glu Ile Lys Phe Pro Thr Ala Ser Thr Tyr Leu His Gln  
210 215 220

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225 230 235 240

Leu Gln Tyr Glu Thr Ser Asn Pro Thr Val Gln Leu Lys Ile Pro Gln  
245 250 255

Leu Arg Val Ser Ser Val Ser Lys Ser Gln Pro Asp Gly Ser Gly Leu  
260 265 270

Leu Asp Val Met Tyr Gln Val Ser Lys Thr Ser Ser Val Leu Glu Gly  
275 280 285

Ser Ala Leu Gln Lys Leu Lys Asn Ile Leu Pro Lys Gln Asn Lys Ile  
290 295 300

Glu Cys Ser Gly Pro Val Thr His Ser Ser Val Asp Ser Tyr Phe Leu  
305 310 315 320

His Gly Asp Leu Ser Pro Leu Cys Leu Asn Ser Lys Asn Gly Thr Val  
325 330 335

Asp Gly Thr Ser Glu Asn Thr Glu Asp Gly Leu Asp Arg Lys Asp Ser  
340 345 350

Lys Gln Pro Arg Lys Lys Arg Gly Arg Tyr Arg Gln Tyr Asp His Glu  
355 360 365

Ile Met Glu Glu Ala Ile Ala Met Val Met Ser Gly Lys Met Ser Val  
370 375 380

Ser Lys Ala Gln Gly Ile Tyr Gly Val Pro His Ser Thr Leu Glu Tyr  
385 390 395 400

Lys Val Lys Glu Arg Ser Gly Thr Leu Lys Thr Pro Pro Lys Lys Lys  
405 410 415

Leu Arg Leu Pro Asp Thr Gly Leu Tyr Asn Met Thr Asp Ser Gly Thr  
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Gly Ser Cys Lys Asn Ser Ser Lys Pro Val

## Sequence Listing.ST25

435

440

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 <211> 9574  
 <212> DNA  
 <213> *Drosophila melanogaster*

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 caataaaaat ctgcctgcat ttttgccttt tgtgtgagct gcccagcaga acgagagaag 180  
 cactttttatt gtatataaaa attatataca tcgccaggag gagctgcagc aaccactcc 240  
 aagccagggt gccacgtcct gagctgctgt aagttctccg cagcagctgc agcagcatca 300  
 gcatcgcagc agcatcagca gcagcgcaca atccgccgca gcatcaattt ggcttttggg 360  
 cagagataat ttaagacaaa tatatgtgat gctatgcaca tcagcagcta tgaaatatcc 420  
 ctagaacgcg ttgctgaaga atgtatgggt cgcaggcaat ggaaacatta tcaagacaaa 480  
 ctgacgtgca gccacttgaa tatcgaggag caacagccca tagcaatagc cggttccgag 540  
 gacgagccat cgcaatacaa ccacagcagc aaggagatca gccagagcaa tcccaaccac 600  
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 accagtacac catcaccacc gccagaacct atcgattgga gaccgtcggc caagtgaac 780  
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 gcagcaactg ccactagtag tagcactagt aatagtcaca ttcacagca cgacagtgc 900  
 agcaactcga gtgcatcact gccccaccac atcagcagca gcagcagcag caacaacaat 960  
 agcagtggca acagggcacg ccacattgct gctgcaagtgc caagagcaac accagcagcg 1020  
 gccacaccg ccaactccct tgaactctac aagctgctga cccagcgggc agccaaaatg 1080  
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 ctgatcaact cgctggccag ccaacagcag cagcagcagc agcaacagat cgctagtgcg 1200  
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## Sequence Listing.ST25

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# Sequence Listing.ST25

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gcggagggag	ggggaacacc	aaattaagcc	acgttttttg	atagtaccat	acaaatcact	4020
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## Sequence Listing.ST25

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aaatgcgttt	aataattata	ttgaaatcat	ttaaaggcat	ttaatatatt	tatcatttcc	6120
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## Sequence Listing.ST25

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gtcaatcgcg	aatcggaaaa	aagaagcagc	accaaatacga	actgcaaagg	caaaacccca	9120
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Sequence Listing.ST25

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tagttataag caattggcgt caaaaaaaaaaaa aaaagcgaaa acaacaaaaa tcttagccag	9360
gcaaaagttt tgagcatatt ttctattatt tttaacaaca acaacaaaac tgatgtaagt	9420
acaattcata aaattagact ttcggtaaac tataataaag aaaatagagc agaaaataac	9480
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<210> 10  
 <211> 1165  
 <212> PRT  
 <213> Drosophila melanogaster

<400> 10

Met	His	Ile	Ser	Ser	Tyr	Glu	Ile	Ser	Leu	Glu	Arg	Val	Ala	Glu	Glu
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Cys	Met	Gly	Arg	Arg	Gln	Trp	Lys	His	Tyr	Gln	Asp	Lys	Leu	Thr	Cys
			20					25					30		

Ser	His	Leu	Asn	Ile	Glu	Glu	Gln	Gln	Pro	Ile	Ala	Ile	Ala	Gly	Ser
		35					40					45			

Glu	Asp	Glu	Pro	Ser	Gln	Tyr	Asn	His	Ser	Ser	Lys	Glu	Ile	Ser	Gln
	50					55					60				

Ser	Asn	Pro	Asn	His	Cys	Lys	Thr	Glu	Asn	His	Arg	Leu	Glu	Gln	Gln
65					70					75					80

His	Asn	Gly	Ser	Gln	Leu	Leu	Glu	Glu	Glu	Asp	Ser	Glu	Asn	Asn	Gln
				85					90					95	

Thr	Ser	His	Asp	Ser	Ser	Arg	Thr	Pro	Thr	Pro	Gly	Ala	Thr	Ser	Thr
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Pro	Ser	Pro	Pro	Pro	Glu	Pro	Ile	Asp	Trp	Arg	Pro	Ser	Ala	Lys	Cys
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Asn	Phe	Cys	Val	Asn	Gly	Arg	Leu	Leu	Thr	Val	Asn	Ala	Gln	Gly	Lys
	130					135					140				

Leu	Val	Ala	Glu	Ser	Ala	Ala	Thr	Ala	Thr	Ser	Ser	Ser	Thr	Ser	Asn
145					150					155					160

Ser	His	Ile	His	Gln	His	Asp	Ser	Asp	Ser	Asn	Ser	Ser	Ala	Ser	Leu
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## Sequence Listing.ST25

165

170

175

Pro His His Ile Ser Ser Ser Ser Ser Ser Asn Asn Asn Ser Ser Gly  
 180 185 190  
 Asn Arg Ala Arg His Ile Ala Ala Ala Ser Ala Arg Ala Thr Pro Ala  
 195 200 205  
 Ala Ala Thr Pro Ala Asn Ser Leu Glu Leu Tyr Lys Leu Leu Thr Gln  
 210 215 220  
 Arg Ala Ala Lys Met Thr Ser Met Asp Ser Met Ala Ala Gln Leu Ala  
 225 230 235 240  
 Gln Phe Ser Leu Leu Ala Asp Phe Asn Leu Ile Asn Ser Leu Ala Ser  
 245 250 255  
 Gln Gln Gln Gln Gln Gln Gln Gln Gln Ile Ala Ser Ala Val Thr Pro  
 260 265 270  
 Thr Thr Ser Glu Val Ser Ala Ala Ala Ile Ser Pro Ala Leu Lys Asp  
 275 280 285  
 Thr Pro Ser Pro Ser Val Asp Ala Pro Leu Asp Leu Ser Ser Lys Pro  
 290 295 300  
 Ser Pro Asn Ser Ser Ile Ser Gly Asp Val Lys Ser Val Arg Ala Cys  
 305 310 315 320  
 Ala Thr Pro Thr Pro Ser Gly Arg Arg Ala Tyr Ser Glu Glu Asp Leu  
 325 330 335  
 Ser Arg Ala Leu Gln Asp Val Val Ala Asn Lys Leu Asp Ala Arg Lys  
 340 345 350  
 Ser Ala Ser Gln His His Glu Gln Arg Ser Ile Leu Asp Asn Arg Leu  
 355 360 365  
 Phe Lys Met Lys His His Asp Gln Glu Gln Asp His Asp Gly Asp Glu  
 370 375 380  
 Leu Glu Asp Ser Asn Asp Asp Ala Glu Ala Glu Val Asp Ser Asn Ala  
 385 390 395 400  
 Ser Thr Pro Val Tyr Pro Ala Glu Phe Ala Arg Ala Gln Leu Arg Lys  
 405 410 415

Sequence Listing.ST25

Leu Ser His Leu Ser Glu His Asn Gly Ser Asp Leu Gly Glu Asp Val  
420 425 430

Asp Arg Gly Ser Pro Lys Met Gly Arg His Pro Ala Cys Gly Asn Ala  
435 440 445

Ser Ala Asn Gln Gly Ala Pro Ala Ser Ile Pro Leu Asp Ala Asn Val  
450 455 460

Leu Leu His Thr Leu Met Leu Ala Ala Gly Ile Gly Ala Met Pro Lys  
465 470 475 480

Leu Asp Glu Thr Gln Thr Val Gly Asp Phe Ile Lys Gly Leu Leu Val  
485 490 495

Ala Asn Ser Gly Gly Ile Met Asn Glu Gly Leu Leu Asn Leu Leu Ser  
500 505 510

Ala Ser Gln Glu Asn Ser Asn Gly Asn Ala Ser Leu Leu Leu Gln Gln  
515 520 525

Gln Gln His Gln Gln His His Gln Gln His His Gln Gln Gln Gln Gln  
530 535 540

Gln Gln His Val Ala Ala Tyr Arg His Arg Leu Pro Lys Ser Glu Thr  
545 550 555 560

Pro Glu Thr Asn Ser Ser Leu Asp Pro Asn Asp Ala Ser Glu Asp Pro  
565 570 575

Ile Leu Lys Ile Pro Ser Phe Lys Val Ser Gly Pro Ala Ser Ser Ser  
580 585 590

Ser Leu Ser Pro Gly Gly Leu Val Gly Gly His His His Pro Leu Asn  
595 600 605

Asn Asn Asn Ser Leu Ser Ile Ser Asn Asn Ser Asn His Ser Ser Asn  
610 615 620

Ser His Arg Asn Gly Ser Asn Arg Ser Pro His Ser Ala Ser Pro Met  
625 630 635 640

Leu Ala Ala Ala Val Ala Gln Gly Gly Tyr Ser Ala Gly Asn Ser Leu  
645 650 655

Leu Thr Ser Ser Ser Ser Ile Gln Lys Met Met Ala Ser Asn Ile  
660 665 670

# Sequence Listing.ST25

Gln Arg Gln Ile Asn Glu Gln Ser Gly Gln Glu Ser Leu Arg Asn Gly  
 675 680 685  
 Asn Val Ser Asp Cys Ser Ser Asn Asn Gly Gly Ser Ser Ser Leu Gly  
 690 695 700  
 Tyr Lys Lys Pro Ser Ile Ser Val Ala Lys Ile Ile Gly Gly Thr Asp  
 705 710 715 720  
 Thr Ser Arg Phe Gly Ala Ser Pro Asn Leu Leu Ser Gln Gln His His  
 725 730 735  
 Ser Ala His His Leu Thr His Gln Gln Gln Gln Gln Leu Ser Ala  
 740 745 750  
 Gln Glu Ala Leu Gly Lys Gly Thr Arg Pro Lys Arg Gly Lys Tyr Arg  
 755 760 765  
 Asn Tyr Asp Arg Asp Ser Leu Val Glu Ala Val Lys Ala Val Gln Arg  
 770 775 780  
 Gly Glu Met Ser Val His Arg Ala Gly Ser Tyr Tyr Gly Val Pro His  
 785 790 795 800  
 Ser Thr Leu Glu Tyr Lys Val Lys Glu Arg His Leu Met Arg Pro Arg  
 805 810 815  
 Lys Arg Glu Pro Lys Pro Gln Pro Asp Leu Val Gly Leu Thr Gly Pro  
 820 825 830  
 Ala Asn Lys Leu Gln Leu Asp Lys Leu Lys Ala Gly Pro His Gly Gly  
 835 840 845  
 Ser Lys Leu Ser Asn Ala Leu Lys Asn Gln Asn Asn Gln Ala Ala Ala  
 850 855 860  
 Ala Ala Ala Ala Ala Ala Ala Ala Ala Ala Ala Ala Thr Pro Asn Gly  
 865 870 875 880  
 Leu Lys Leu Pro Leu Phe Glu Ala Gly Pro Gln Ala Leu Ser Phe Gln  
 885 890 895  
 Pro Asn Met Phe Trp Pro Gln Thr Asn Ala Thr Asn Ala Tyr Gly Leu  
 900 905 910  
 Asp Phe Asn Arg Ile Thr Glu Ala Met Arg Asn Pro Gln Ala Ser Asn  
 915 920 925

# Sequence Listing.ST25

His His Gly Leu Met Lys Ser Ala Gln Asp Met Val Glu Asn Val Tyr  
930 935 940

Asp Gly Ile Ile Arg Lys Thr Leu Gln Ala Ser Glu Gly Asn Gly Ser  
945 950 955 960

Ala Ala Gly Asn Gly Ser Asn Gly Ser Asn Gly Asn Gly His Gly His  
965 970 975

Gly His Gly His Gly His Ala Leu Leu Asp Gln Leu Leu Val Lys Lys  
980 985 990

Thr Pro Leu Pro Phe Thr Asn His Arg Asn Asn Asp Tyr Ala Ala Thr  
995 1000 1005

Cys Ser Ser Ala Ser Gly Glu Ser Val Lys Arg Ser Gly Ser Pro  
1010 1015 1020

Met Gly Asn Tyr Ala Asp Ile Lys Arg Glu Arg Leu Ser Ala Asp  
1025 1030 1035

Ser Gly Gly Ser Ser Asp Glu Glu His Ser Ala Ser His Ile Asn  
1040 1045 1050

Asn Asn Asn Ser Asp Leu Ala His Asn Lys Asn Lys Ser Gly Gly  
1055 1060 1065

Gly Gly Gly Gly Gly Asn Gly Gln Thr Asn Gly Asn Gly Arg  
1070 1075 1080

Ser Ser Arg Met Thr Ser Arg Asp Asp Ser Glu Thr Asp Ala Ser  
1085 1090 1095

Ser Phe Lys Ser Gly Glu Asn Gly Gly Gln Gln Asn His Lys Met  
1100 1105 1110

Met Asp Leu Asn Gly Gly Ser Ser Ser Ser His Ile Lys Cys  
1115 1120 1125

Glu Ser Glu Ala Ala Thr Gly His His Ser Pro Gly His His Thr  
1130 1135 1140

Thr Ser Ile Leu His Glu Lys Leu Ala Gln Ile Lys Ala Glu Gln  
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Val Asp Gln Ala Asp Gln Leu

## Sequence Listing.ST25

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Cys Met Gly Arg Arg Gln Trp Lys His Tyr Gln Asp Lys Leu Thr Cys  
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Ser His Leu Asn Ile Glu Glu Gln Gln Pro Ile Ala Ile Ala Gly Ser  
 35 40 45

Glu Asp Glu Pro Ser Gln Tyr Asn His Ser Ser Lys Glu Ile Ser Gln  
 50 55 60

Ser Asn Pro Asn His Cys Lys Thr Glu Asn His Arg Leu Glu Gln Gln  
 65 70 75 80

His Asn Gly Ser Gln Leu Leu Glu Glu Glu Asp Ser Glu Asn Asn Gln  
 85 90 95

Thr Ser His Asp Ser Ser Arg Thr Pro Thr Pro Gly Ala Thr Ser Thr  
 100 105 110

Pro Ser Pro Pro Pro Glu Pro Ile Asp Trp Arg Pro Ser Ala Lys Cys  
 115 120 125

Asn Phe Cys Val Asn Gly Arg Leu Leu Thr Val Asn Ala Gln Gly Lys  
 130 135 140

Leu Val Ala Glu Ser Ala Ala Thr Ala Thr Ser Ser Ser Thr Ser Asn  
 145 150 155 160

Ser His Ile His Gln His Asp Ser Asp Ser Asn Ser Ser Ala Ser Leu  
 165 170 175

Pro His His Ile Ser Ser Ser Ser Ser Ser Asn Asn Asn Ser Ser Gly  
 180 185 190

Asn Arg Ala Arg His Ile Ala Ala Ala Ser Ala Arg Ala Thr Pro Ala  
 195 200 205

Ala Ala Thr Pro Ala Asn Ser Leu Glu Leu Tyr Lys Leu Leu Thr Gln  
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210 215 220

Arg Ala Ala Lys Met Thr Ser Met Asp Ser Met Ala Ala Gln Leu Ala  
 225 230 235 240

Gln Phe Ser Leu Leu Ala Asp Phe Asn Leu Ile Asn Ser Leu Ala Ser  
 245 250 255

Gln Gln Gln Gln Gln Gln Gln Gln Ile Ala Ser Ala Val Thr Pro  
 260 265 270

Thr Thr Ser Glu Val Ser Ala Ala Ala Ile Ser Pro Ala Leu Lys Asp  
 275 280 285

Thr Pro Ser Pro Ser Val Asp Ala Pro Leu Asp Leu Ser Ser Lys Pro  
 290 295 300

Ser Pro Asn Ser Ser Ile Ser Gly Asp Val Lys Ser Val Arg Ala Cys  
 305 310 315 320

Ala Thr Pro Thr Pro Ser Gly Arg Arg Ala Tyr Ser Glu Glu Asp Leu  
 325 330 335

Ser Arg Ala Leu Gln Asp Val Val Ala Asn Lys Leu Asp Ala Arg Lys  
 340 345 350

Ser Ala Ser Gln His His Glu Gln Arg Ser Ile Leu Asp Asn Arg Leu  
 355 360 365

Phe Lys Met Lys His His Asp Gln Glu Gln Asp His Asp Gly Asp Glu  
 370 375 380

Leu Glu Asp Ser Asn Asp Asp Ala Glu Ala Glu Val Asp Ser Asn Ala  
 385 390 395 400

Ser Thr Pro Val Tyr Pro Ala Glu Phe Ala Arg Ala Gln Leu Arg Lys  
 405 410 415

Leu Ser His Leu Ser Glu His Asn Gly Ser Asp Leu Gly Glu Asp Val  
 420 425 430

Asp Arg Gly Ser Pro Lys Met Gly Arg His Pro Ala Cys Gly Asn Ala  
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Ser Ala Asn Gln Gly Ala Pro Ala Ser Ile Pro Leu Asp Ala Asn Val  
 450 455 460

# Sequence Listing.ST25

Leu Leu His Thr Leu Met Leu Ala Ala Gly Ile Gly Ala Met Pro Lys  
465 470 475 480

Leu Asp Glu Thr Gln Thr Val Gly Asp Phe Ile Lys Gly Leu Leu Val  
485 490 495

Ala Asn Ser Gly Gly Ile Met Asn Glu Gly Leu Leu Asn Leu Leu Ser  
500 505 510

Ala Ser Gln Glu Asn Ser Asn Gly Asn Ala Ser Leu Leu Leu Gln Gln  
515 520 525

Gln Gln His Gln Gln His His Gln Gln His His Gln Gln Gln Gln Gln  
530 535 540

Gln Gln His Val Ala Ala Tyr Arg His Arg Leu Pro Lys Ser Glu Thr  
545 550 555 560

Pro Glu Thr Asn Ser Ser Leu Asp Pro Asn Asp Ala Ser Glu Asp Pro  
565 570 575

Ile Leu Lys Ile Pro Ser Phe Lys Val Ser Gly Pro Ala Ser Ser Ser  
580 585 590

Ser Leu Ser Pro Gly Gly Leu Val Gly Gly His His His Pro Leu Asn  
595 600 605

Asn Asn Asn Ser Leu Ser Ile Ser Asn Asn Ser Asn His Ser Ser Asn  
610 615 620

Ser His Arg Asn Gly Ser Asn Arg Ser Pro His Ser Ala Ser Pro Met  
625 630 635 640

Leu Ala Ala Ala Val Ala Gln Gly Gly Tyr Ser Ala Gly Asn Ser Leu  
645 650 655

Leu Thr Ser Ser Ser Ser Ile Gln Lys Met Met Ala Ser Asn Ile  
660 665 670

Gln Arg Gln Ile Asn Glu Gln Ser Gly Gln Glu Ser Leu Arg Asn Gly  
675 680 685

Asn Val Ser Asp Cys Ser Ser Asn Asn Gly Gly Ser Ser Ser Leu Gly  
690 695 700

Tyr Lys Lys Pro Ser Ile Ser Val Ala Lys Ile Ile Gly Gly Thr Asp  
705 710 715 720

# Sequence Listing.ST25

Thr Ser Arg Phe Gly Ala Ser Pro Asn Leu Leu Ser Gln Gln His His  
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 Ser Ala His His Leu Thr His Gln Gln Gln Gln Gln Gln Leu Ser Ala  
 740 745 750  
 Gln Glu Ala Leu Gly Lys Gly Thr Arg Pro Lys Arg Gly Lys Tyr Arg  
 755 760 765  
 Asn Tyr Asp Arg Asp Ser Leu Trp Arg Arg Ser Arg Arg Cys Arg Glu  
 770 775 780  
 Leu Lys Cys Arg Phe Ile Glu Arg Val Ala Thr Met Arg Thr Ala Phe  
 785 790 795 800  
 His Thr Gly Val Gln Gly Gln Gly Thr Ser Pro Asp Ala Thr Ala Gln  
 805 810 815  
 Ala Arg Ala Gln Ala Ala Ala Arg Ser Arg Arg Pro Asp Arg Thr Ser  
 820 825 830  
 Gln Gln Ala Ala Ala Gly Gln Thr Glu Gly Gly Thr Thr Trp Trp Leu  
 835 840 845  
 Gln Ala Glu Gln Cys Pro Gln Glu Pro Lys Gln Ser Gly Gly Cys Gly  
 850 855 860  
 Gly Gly Gly Gly Ser Ser Ser Ser Gly Arg Cys His Ala Gln Arg Pro  
 865 870 875 880  
 Glu Thr Ala Pro Phe Arg Gly Gly Ser Thr Gly Val Ile Leu Ser Ala  
 885 890 895  
 Glu His Val Leu Ala Pro Asp Glu Arg His Glu Cys Leu Arg Pro Gly  
 900 905 910  
 Leu Gln Ser His His Gly Gly Asp Ala Glu Phe Pro Gly Leu Gln Ser  
 915 920 925  
 Pro Arg Leu Met Lys Ser Ala Gln Asp Met Val Gly Glu Arg Leu Arg  
 930 935 940  
 Trp His His Gln Glu Asp Ala Ala Gly Glu Gln Gly Asn Gly Ser Ala  
 945 950 955 960  
 Ala Gly Asn Gly Ser Asn Gly Ser Asn Gly Asn Gly His Gly His Gly  
 965 970 975



# Sequence Listing.ST25

His Gly His Gly His Ala Leu Leu Asp Gln Leu Leu Val Lys Lys Thr  
980 985 990

Pro Leu Pro Phe Thr Asn His Arg Asn Asn Asp Tyr Val Val Thr Cys  
995 1000 1005

Ser Ser Ala Ser Gly Glu Ser Val Lys Arg Ser Gly Ser Pro Met  
1010 1015 1020

Gly Asn Tyr Ala Asp Ile Lys Arg Glu Ala Leu Ser Ala Asp Ser  
1025 1030 1035

Gly Gly Ser Ser Asp Glu Glu His Ser Ala Ser His Ile Asn Asn  
1040 1045 1050

Asn Asn Ser Asp Leu Ala His Asn Lys Asn Lys Ser Gly Gly Gly  
1055 1060 1065

Gly Gly Gly Gly Asn Gly Gln Thr Asn Gly Asn Gly Arg Ser Ser  
1070 1075 1080

Arg Met Thr Ser Arg Asp Asp Ser Glu Thr Asp Ala Ser Ser Phe  
1085 1090 1095

Lys Ser Gly Glu Asn Gly Gly Gln Gln Asn His Lys Met Met Asp  
1100 1105 1110

Leu Asn Gly Gly Arg Ala Ala Ala Val Thr Ser Ser Ala Asn Arg  
1115 1120 1125

Arg Arg Pro Pro Asp Ile Thr Val Leu Asp Thr Thr Pro Arg Pro  
1130 1135 1140

Tyr Cys Thr Arg Ser Trp Ser Arg Ser Arg Pro Ser Lys Trp Thr  
1145 1150 1155

Arg Arg Phe Ser Tyr Trp Ser Ser Arg Trp Thr Arg Ile Gln Arg  
1160 1165 1170

Ser Pro Trp His Arg Trp Ser Pro Thr Thr Thr Val Ser Trp Arg  
1175 1180 1185

Arg Glu Gly Glu His Gln Ile Lys Pro Arg Phe Leu Val Val Pro  
1190 1195 1200

Tyr Lys Ser Leu Asn Arg Ile Ile Tyr Ile Tyr Ile Tyr Ile Tyr  
Page 25

Sequence Listing.ST25  
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1205

1210

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1220

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## Sequence Listing.ST25

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# Sequence Listing.ST25

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## Sequence Listing.ST25

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tagctacaaa ttccaaggca actgataatg acaagaacca tttaacaaga aaaccaagac	7140
agcaaagtac agtgcgtttc atgactcgca aatacgggca atagaatact agtttttcat	7200

# Sequence Listing.ST25

tgcccatgga gaactgaaac gcactttggc cctcacttca tattgatagg gtaatcggat	7260
ccaaaatctg taaaccaaat tttgggatca gcgattaaaa ccttaacgga agttcataac	7320
tgcagaaaaa aaaagtcgaa agtcgaaatg tcaacctagt ggtagttcga aacacaaaaa	7380
caaaacaaac caatcgagtg taattgagtg acagcttgag aatggtgaat tgtatagaat	7440
ttttgcttgt gcacctggtc gagggggccg tggttgcgcc cccttttttg tttctaggtg	7500
aacaggcgaa aacgctcagg tacgtgtttt atttttcggg gagaaacaag attgattacc	7560
catacattac ttattctttg ttttactaca acataatagt taatatttgt ataaaaaaaa	7620
aagacgacga tggcgagaag ggaaaaccag ctaaaaaaat tgatatattc ataatataga	7680
attgttttaa atggtttgag agcgaaaaat attgaggggt tctagcgtgc ttcattgaaat	7740
tgctcatatt tgtgtataaa acctattttg ttcaatgcga atcaaaattt gctgaatata	7800
agtgcataata tatataatta gagttttatt ttcggtttag ttaagcgcac acaatgatta	7860
cgattttaat aattattatt agttatgacc taatagtagg caaatcaaaa tttcttcaca	7920
taaaacaatc aacttctact ttcaaataat ttctagacgt atgtaactat aggttattat	7980
tctattatta tacggcctaa aactatttag cgcgttggtt gactcgattt atggtttgta	8040
catattagac aacattttta tggatttctc ctcttttttt attattacta gcattattac	8100
tccctatttt aattgacttc ttaaatgggc aacatcattt tgaactatag tgcaattggt	8160
tcaaacaaaa ccaagcaacc aacaacaaat atattaacat taaagattaa tataatttac	8220
aagctttctt tgccgatgcc aagaaggatg aataacgcac atgtctaccg tatggatcga	8280
aaatcaaaaa tcattttaag tgcacataac tctttaaaat agcaattaga ctacgactag	8340
gtttttccat tattatgctc acgcttcagt ccaaaaaaaaaa aaaaattgaa attcttcaca	8400
ttctcattca catgctcagt tgcagacatc acaatcacaa gccagaaaaa gaaaactcaa	8460
aacttttcac ctaagttcaa cttgagcgac cgcaacaact caagatcagc aaagatcaca	8520
agcgaaaatt gctaagaaac aatagccag acgtgataac aaccacaaaa tagccacaac	8580
aatagcccaa aaataattga aacaaaaatt gattaaaagc caaaaaaaaa ataaaaaagc	8640
aaataataag aacttaatta catgaaacta attaaatata aagagatgtc caaaagctca	8700
gataaaatcc aagcagccta aagtcgattg tacttttctt ttttctatcc acaaatacaa	8760
ccaacaacaa ccaacaacaa caacaacagc agcaaccaca atttaattaa acaatagtac	8820
tactctaact acagaactta aatagccaca agtaaataga attagccaca gcaatttaac	8880
tttataacaa gatgcccaa cacaggacac tcacagaaac gtttcttcaa aacagatttg	8940
tactcttagc cacataaccg atacgatata atagccactt aattaggatc gatcatagcc	9000
aagcaataga atcagatatc agatacaaaa ctcagaaccg gaaacaggaa atcgtcaatc	9060

# Sequence Listing.ST25

gcgaatcgga aaaaagaagc agcaccaa	at cgaactgcaa aggcaaaacc ccagtatatt	9120
aataatgggg agaaacataa tgataaacca	tttttatttc aattattaac ttataacaca	9180
acatcaccac cacagcttcc cacagtttca	gttacacagg accaccacca tagccctagg	9240
aaattatatt cataattaat caatcaatca	atccgtaaaa ccaacaactt caatagttat	9300
aagcaattgg cgtcaaaaaa aaaaaaagcg	aaaacaacca aaatcttagc caggcaaaag	9360
ttttgagcat atttttcatt atttttacaa	caaacaacaa aactgatgta agtacaattc	9420
ataaaattag actttcggta aactataata	aagaaaatag agcagaaaat aacatttttt	9480
ttttgcatta cataattgct acaaaattca	aaaacaaaga acgatttttt agtggaaaac	9540
aaaagccaat aagcaaataa aaagaat		9567